COMPARATIVE EFFECTIVENESS OF LECTURERS` USE OF COMPUTER AND TYPEWRITER FOR TEACHING WORD PROCESSING IN BUSINESS EDUCATION AT FEDERAL COLLEGE OF EDUCATION, KANO-NIGERIA

BY

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A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA
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DECLARATION

I declare that the work in this Dissertation titled**ComparativeEffectiveness of Lecturers` Useof Computer and Typewriter on Students' Skill Acquisition of Word Processing in Business Education in Federal College of Education, Kano, Nigeria** has been carried out by me in the Department of Vocational and Technical Education. The information derived from the literature has been acknowledged in the text and a list of references provided. No part of this Dissertation was previously presented for another degree or diploma at this or any other institution.

_____ _____

Gloria Chile AGOHA Date.

CERTIFICATION

This Dissertation Titled **"COMPARATIVE EFFECTIVENESS OF LECTURERS` USE OF COMPUTER AND TYPEWRITER FOR TEACHING WORD PROCESSING IN BUSINESS EDUCATION AT FEDERAL COLLEGE OF EDUCATION, KANO-NIGERIA"** by Gloria Chile Agoha meets the regulation governing the award of Master of Business Education Degree of Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This Research Work is dedicated to my lovely children: Prince Ugochukwu, Joshua Uchechukwu, Precious Chidimma and GodswillChukwuebuka. .

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OPERATIONAL DEFINITION OF TERMS

Graphics These are pictures, images and illustrations which can be imported or inserted into a document.

Hardware: This is the word used to describe the electro-mechanical components of a computer system. This is the computer equipment itself.

Microsoft word: This is a word processor from Microsoft Corporation which has an intelligent editor, that is, a level of intelligence has been built into the editing screen of Microsoft word such that it can actually do some form of "thinking" and at such it can "guess" what you are doing (or want to do) and then help you do it automatically.

Software: This is the invisible part of a computer system which refers to all programs that can be used on a particular system to solve the problems of any particular user.

Word processing: This is the art of using a computer hardware and software to enter, edit, format and print text in business offices like spreadsheet, word processor, desktop publishing into a sing suit.

ABSTRACT

TheComparative Effectiveness of Using Computer and Typewriter for Teachingword processing in business education or instruction generally, has often been a serious area of discourse among business educators, teachers and students. One of such areas of concerns has to do with the level of effectiveness in the various applications or skills of the computer by business education students. The problem is that at Federal College of Education Kano, the conventional method of teaching and learning is still in use for word processing in business education. This traditional method can no longer provide the students with the knowledge and skills needed to succeed in the contemporary world of works that exist in this 21st century. Among the objectives includes to determine the relative effects of the levelof skills acquired by business education students taught speed development in word processing using computer and those taught using manual typewriter in Federal College of Education, Kano. The theory adopted for this study is Bandura's Social Learning (Imitative) Theory. This theory is adopted to this study base on the fact that the students learn by observing the teacher demonstrating or performing certain tasks with the computer and the typewriter; and after watching how certain skills are used, students then duplicate the act. The entire 160 NCE III business education students of Federal College of Education, Kano formed the population of the study. All the thirty (30) students in office option formed the sample for the study. This was then divided into two groups (male and female) with each group having 15 students. Data collection phase lasted for three weeks, where pre-test was given before exposing the students to the treatment variable (computer) and control variable (typewriter). Mean and standard deviation were used to answer all the research questions. To achieve this goal four research questions were raised to guide the study, while t-test statistics was used to test all the four (4) null hypotheses formulated to be tested at 0.05 degree level of

significance (p= 0.05). The analysis of the findings revealed among others that, students exposed to treatment to learn speed development performed better than students exposed to traditional manual typewriter. It was also found that, students exposed to computer performed better than those exposed to conventional typewriter in terms of learning speed development. Chapter five concluded that, use of computer in learning word processing among business education students has significant effect than using conventional manual typewriter in Federal College of Education Kano State. It was recommended among others, that there is need for curriculum planners to emphasize the importance of using computer when teaching word processing by teachers of business education in federal college of education Kano State. It wasalso recommended that, teachers in Federal Collegeof Education Kano should be provided with adequate number of computers by the school authority for teaching and learning word processing in business education as it was found to be more effective than the manual typewriter.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The aim of Business Education is to teach the concepts meaningfully and make students become aware of how these concepts can be used daily. It is quite clear that 'word processing in business education' (formerly known as typewriting) is one of the most important but difficult courses in business education because of the manual repetition of works; and as the traditional (manual) method is used in teaching it, students are bored, weak and more especially, lack the appropriate skills needed to fit in for the contemporary world of works that exist today. It is obvious that alternative teaching approaches; needed to teach this sort of difficult concepts be used in order to prepare students with the knowledge and skills needed to succeed in this twenty-first century.

A computer is a machine or device which under the control of a stored program, can accept data in a prescribed form(input), process the data and supply the results as information in specified format(output). Acomputer is an electronic machine which is capable of storing data, performing and retrieving information at a very high speed. It also involves the activities of creation, manipulation and communication of information.

A typewriter is a manual machine that produces writing similar to print. It has keys that you press to make metal letters or signs that hit a piece of paper through a fabric(ribbon) covered with ink. A typewriter can also be seen as a machine which can print letters on paper by means of keys. Ezeah(2006) indicates that before the advent of word processors, typewriters were used to produce textual materials.

Uptill date, typewriters are still useful, more especially manual typewriters because they are operated manually without the use of electricity. But they have many limitations and disadvantages which word processors have come to solve.Skill acquisition is a well established habit of doing something through acquisition of performance capabilities; a manual way of doing something. Skill is knowledge translated into practical activity for economic development. The acquired skills and competency can manifest in the life of the students to assist them improve on higher standard of life in the community. Skill acquisition helps in developing intrinsic potential in students and it is a significance function of educational institution. Skill acquisition is highly flying in Nigeria institutions of learning though it depends on the particular trade involved. The skills involved in word processing in business education among others includes: keyboarding, printing, reprographic skill; typing, duplicating, photo copying and scanning.

Word processing in business education is the use of the computer hardware and software to create, edit, view, store, retrieve and print textual materials (example, letters, memos, documents. Word processing in Business Education includes: typing legal documents, layout of documents and job specifications, speed developments/consolidation, advanced display work, literary work and itinerary.

Computer and typewriter usage refer to the use of computers and typewriters for drills, practice exercises, and tutorial sequences to the students, and sometimes to engage the students in a dialog about the substance of the instruction. Akiti and Onyema (2010) assert that computer is an interactive technology concept which enables the user to interact with the system. The dynamic nature of the society has necessitated the need for the use of the modern technology in teaching and learning in Federal Colleges of Education, Kano, Nigeria.

Traditional education environments (the use of manual typewriters) do not seem to be suitable for preparing learners to function or to be productive in today's work place or society. The position is that any educational system that does not incorporate the use of new innovations in teaching and learning cannot seriously be said to prepare the students for life in this twenty-first century. Innovations in technology could be used to help students in their learning. Onyesom (2014) asserts that innovations can play important roles in the students' developmental skills, as well as motivation and knowledge.

In their words, Mamman and Nwabufo (2014), clearly said that the situation found in our business schools and colleges of education create gap between the potential offered by modern word processing in business education and the actual manual way and practice. Teaching is the profession or practice; and the method adopted by the teacher may hinder or promote learning therefore, a teacher's knowledge of a variety of teaching methods, the type of instructional materials used and the abilities of students he/she teaches that vary from time to time can help reduce monotony, boredom and lack of interest. On the other hand, absenteeism and lack of concentration by students as often observed by the teachers of word processing in business education during manual typewriting class adversely affect students' academic performance and make them lack the necessary skills required after graduation. As there are many methods of teaching, it is, however pertinent to realize that any method of teaching is only a means to an end and not an end itself. Aliyu (2013) has therefore, advised teachers that in teaching word processing for example, how to centre items on a title page, how to arrange data in tabular form, reproducing mail able documents and how to address envelops requires careful planning and organization of the instructional materials.

The observable teaching and learning can effectively be handled by the teacher and accepted by the learner. Interest in the subject can be generated through a motivational process which leads to active preparation for the lesson and meaningful teaching of the subject. In agreement with the above statement, Douglas (2011) opines that in learning word processing in business education, computer should be used in order to enhance students' skills. The learner on the other hand, should be able to use the software and hardware of a computer to perform any assigned job. This implies the application of basic computer skills.

However, Federal Colleges of Education Kano - Nigeria should know that the application of the full complement of the computer gadgets is the basic computer skills which includes knowing how to power on the computer, being able to use a mouse to interact with elements on the screen, being able to use the computer keyboard, being able to shut down the computer properly after use. The learner under such condition is required to possess some enabling abilities which include; obedience, attention, good comportment, hard work, respect for the teacher's competency and willingness to learn. Learning is a relatively persistent change in the learner's behavior as a result of experience and training. Learning must change an individual, the change comes about as a result of experience and the change in an individual's possible and positive behavior. With new learning, a person is in some way different from what he was before the new learning. For example, if a student's typing skill is inadequate (inappropriate for his level and situation) then it is clear that the teacher must change his typing behavior to a more appropriate level which guarantee him more task and guiding him on how to do it.

As it is well known, word processing in Business Education is the use of the computer hardware and software to create, edit, view, store, retrieve and print textual materials (example, letters, memos, documents, etc.).Word processing in Business Education includes: typing legal

documents, layout of documents and job specifications, speed development/consolidation, advanced display work, literary work and itinerary. But when one goes round some colleges of education particularly, Federal College of Education, Kano State; the deficiency in these application gadgets in this area becomes glaring. There are other skills which are essential in ICT, but some among others appear to be lacking These skills include information processing for example(analyzing, synthesizing, key-boarding, printing).There is also reprographic skill andamong them include(typing, duplicating, photocopying, scanning, man folding, etc).

The manual ways of doing things is gradually fading because it does not help the educational system to meet up with the demand of the society. Moreover, manual typewriter make students to be tired and weak; especially if the typewriters are in bad working condition as there are no longer typewriter expert technicians for service and repairs. This situation calls for the use of computers and if adequate computer hardware and software facilities are provided in most of these colleges of education, students will significantly improve in their performances. It is based on this background that the researcher embarked on this study to evaluate the effects of usage of computer and typewriter on students' skill acquisition in learning word processing in business education at Federal College of Education Kano - Nigeria.

1.2 Statement of the Problem

Innovation in education generally has made the inclusion of modern technology into teaching and learning compulsory. The researcher has noticed that teaching and learning of word processing in business education is still carried out using the traditional obsolete worn-out manual typewriters at Federal College of Education, Kano - Nigeria. This traditional system of teaching and learning with obsolete equipment has led to students' absenteeism and lack of interest in the subject matter.

In deed traditional methods of learning can no longer prepare the learner for the contemporary world of work that exists today. Technology enhanced learning prepare students with the knowledge and skill needed for success in this twenty-first century. The researcher observed that Federal College of Education Kano State has not effectively incorporated computers in teaching and learning or in some cases where few computers are available they are not adequately utilized forstudents' learning. The use of new technologies delivery will undoubtedly enhance students' learning word processing in business education. The application of the new technology will act as a catalyst for change in this domain and by their nature are tools that encourage and support independent learning, thereby giving way to new scenarios which favour both individual and collaborative learning. It is in the light of this that the researcher decided to carry out this experimental study just to find out: "comparative effectiveness of using computer and typewriter on students' skill acquisition in learning word processing in business education at Federal College of Education, Kano- Nigeria".

1.3 Objectives of the Study

The general objective of this study was to compare the effects of computer and typewriter usage on students' learning of word processing in business education in Federal College of education Kano State. The specific objectives were to:

1. ascertainthe relative effects of the level of skills acquired by business education students taught speed development in word processing using computer and those taught using manual typewriter in Federal College of Education Kano.
2. assess the relative effects of the level of skill acquired by business education students taught accuracy development in word processing using computer and those taught using manual typewriter in Federal College of Education Kano.

3. determine the relative effects of the level of skill acquired by business education students taught text edition in word processing using computer and those taught using manual typewriter in Federal College of Education Kano.
4. investigatethe relative effects of the level of skill acquired by business education students taught creation of tables in a document in word processing using computer and those taught using manual typewriter in Federal College of Education, Kano.

1.4: Research Questions

Based on the specific objectives, the following research questions were raised:

1. What is the relative effects of the level of skill acquired by business education students taught speed development in word processing using computer and those taught using manual typewriter?
2. What is the relative effects of the level of skill acquired by business education students taught accuracy development in word processing using computer and those taught using manual typewriter?
3. What is the relative effects of the level of skill acquired by business education students taught text edition in word processing using computer and those taught using manual typewriter?
4. What is the relative effect of the level of skill acquired by business education students taught table creation in document in word processing using computer and those taught using manual typewriter?

1.5 Research Hypotheses

The following null hypotheses were formulated in line with the research questions:

1. There is no significant difference between the relative effects of the level of skill acquired by business education students taught speed development in word processing using computer and those taught using manual typewriter in Federal college of education Kano.
2. There is no significant difference between the relative effects of the level of skill acquired by business education students taught accuracy development in word processing using computer and those taught using manual typewriter in Federal College of Education, Kano.
3. There is no significant difference between the relative effect of level of skill acquired by business education students taught text edition in word processing using computer and those taught using manual typewriter in Federal College of Education Kano.
4. There is no significant difference between the relative effect of level of skill acquired by business education students taught creation of tables in a document in word processing using computer and those taught using manual typewriter in Federal College of Education Kano.

1.6 Significance of the Study

The findingsof this study are expected to be beneficial to the following stakeholders: Students, Teachers, School Authorities, Ministry of Education, Curriculum Planners, Tertiary institutions and National Commission for Colleges of Education (NCCE).

Students in the study areas and other colleges of education stand to benefit from the findings of the study when they begin to interact with technology in the learning process so that on graduation, they too can use same in classroom delivery. The study will also enable business education students to avail themselves on the frequent use of computer and

various computer training that will enable them acquire the skills needed by employers of labour or become self employed on graduation.

The result of this study will enable teachers of business education to adjust to a better way of teaching methods. This will assist to bring effective and efficient teaching and learning of business education in Nigeria. Findings from the study will encourage teacher educators in colleges of education and universities in incorporating training in IT-assisted strategy in teacher preparation programmes.

The study will also help teachers of business education to avail themselves in training and retraining of the new skills (use of modern computer) available in teaching and learning.

The college administration will be informed on the state of computer equipment for teachers and students' use for teaching and learning purposes, whether they are adequate or not. The recommendations will enhance teaching of large classes and access to course materials in the study area. School Authorities would also be directed by the study on the provision of a conducive atmosphere for teaching and learning.

The Federal Ministry of Education will benefit from this study as it will be guided on how to formulate and implement appropriate policies that will lead to effective teaching and learning of word processing in business education.

Curriculum planners and the body responsible for monitoring the academic programmes of colleges of education in the country - National Commission for Colleges of Education (NCCE) and other regulatory agencies of other tertiary institutions will consider the study to review business education curriculum to prepare teachers and students for computer age in teaching and learning process and other academic activities that are computer inclined in the country.

Curriculum planners also will benefit from the study because it will help them in reviewing of the course content every four to five years.

The study will also enable tertiary institutions that offer business education to direct training of students towards the needs of the labour market and to address the current challenges faced by students after graduation.

1.7 Basic Assumption of the Study

This study was carried out on the assumption that:

1. Convenient learning environment exist in the study area.
2. When computer is used to deliver lecture students' interest are aroused and they understand better
3. Both Teachers and students are using computer for teaching and learning word processing; for example, interactive white marker board for teaching centralization of items on the title on a page, text edition, speed and accuracy, arrangement of data in table form.

1.8 Delimitation of the Study

This study was delimited to Federal College of Education Kano. The study was also delimited to NCE III students in office education option. The study was delimited to these students because they have made up their minds to take office education as their career and they will be able to provide relevant information for the study. It was delimited to usage of computer and typewriter on students' skill acquisition and it was also delimited to word processing in business education because this is the major concern of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter focuses on the review of related literature on the effects of usage of Computer and typewriter on students' skill acquisition in teaching and learning word processing in business education in Federal College of Education, Kano State. The relevant information obtained for the purpose of this study are arranged and discussed under the following sub-headings:

2.1 Theoretical Frame Work of the Study

2.1.1 Theory of Computer

2.2.1 Concept and History of Business Education

2.2.2 Concept and Origin of Computer

2.2.3 Concept and Origin of Typewriter

2.3 Typewriting as Word Processing in Business Education

2.4 The Need for Computer on Students Skill Acquisition

2.5 The Role of the Teacher as a Guide in Teaching and Learning Word Processing in Business Education.

2.6 Empirical Studies

2.7 Summary of the Reviewed Literature

2.1 Theoretical Framework

The theoretical frame work for this study will be Vygotsky'stheory of social cognitive development. the mentioned theory is related to the study in that word processing required attention, production and motivation. Cognitive theories grew out of Gestalt, psychology, development in Germany in the early 1900s and brought to America in the 1920s Its major thematic thrust is that "social interaction plays a fundamental role in the development of cognition" An important concept in Vygotsky's theory is that "the potential for cognitive development is limited to a certain time span in learning which he calls the "Zone of Proximal

Development". An Important concept in Vygotsky's theory is that "the potential for cognitive development is limited to a certain time span which he calls the "zone of proximal development". He defines the "zone of proximal development" as having four (4) learning stages. These stages 'range between the lower limit of what the student knows and the upper limit of what the student has the potential of accomplishing"

Another notable aspect of Vygotsky's theory cited by Zavershneva (2012), is that it claims "that instruction is most efficient when students engage in activities within a supportive learning environment and when they receive appropriate guidance that is mediated by tool". These instructional tools can be defined as 'cognitive strategies, a mentor, peers, computers, printed materials, or any instrument that organizes and provides information for the learner". Their role is "to organize dynamic support to help learners complete a task near the upper end of their zone of proximal development and then to systematically withdraw this supports as the learner move to higher levels of confidence". This theory of social cognitive development has to do with any other subject in the learner and this brings about social interaction which plays afundamental role in the development of cognition.

A learner is given a certain task like solving a problem and reading within a given period, after the period is over his responses would show whether he understand the task being assigned to him or not. In the same vein word processing being a psychomotor, also deals with stipulated time, with certain speed and accuracy and timing, (25wpm, 35wpm or 50 wpm). A student in the word processing class would be known by the level of speed attainment. This speed attainment determines the student's progress.

a) Cognitive Learning (Habit Learning)

In his words, Adeboye (2002) maintained that this type of learning is attained more physically than mentally. A child is shown a dog and taught how to spell it. Next time he sees a dog, he is able to verbally call the animal dog without mixing it up with cat or goat. When students are taught how to type blocked letter style and also shown a well reproduced one, when assignment on blocked letter style is given to them, they will follow the same pattern to do it.

b) Psychomotor Skill: (Operant ConditioningInstrument Learning)or

This is otherwise known as the stimulus learning. The objectives in the psychomotor domain are concerned with manipulation of skills which the students have already developed. As indicated by Masha (2000), the learner has to respond and participate actively in it. For example, in word processing in business education, students need constant practice because retention and skill acquisition are better ensured through frequent repetition and over learning. Constant practice is essential to avoid decay of knowledge and limit forgetting.

c) Bandura's Social Learning Theory (Imitative Learning)

Bandura's social learning theory as observed by Aliyu (2013) is an imitative learning theory. This theory is adopted to this study base on the fact that the students learn by observing the teacher demonstrating or performing certain tasks with the computer and typewriter. After watching how certain skills are used, students then duplicate the act. In word processing, the teacher is there as a guide. He sits down and types a copy of exactly what he wants the students to reproduce, after which the students reproduce same. Observation alone is insufficient for effective learning. Most of the behavior in social learning is acquired through the principle of reinforcement especially in situations where a person observes the actions of another person (a model) who is rewarded or punished for these actions. This process of learning through imitation

is influenced by the nature of the reinforcement given to the model. The teacher serves as the model in the classroom where teaching and learning with computer and typewriter take place.

Bandura's social learning theory 'emphasizes the importance of observing and modeling the behaviour, attitudes and emotional reactions of others". In applying Bandura's social learning theory, it suggests keeping the following principles in mind:

i. The highest level of observational learning is achieved by first organizing and rehearsing the modeled behavior symbolically and then enacting it overtly.

ii. Individuals are more likely to adopt a modeled behavior if the model is similar to observe and has admired status and the behaviour has functional value.

Teachers can easily apply these theories to help students of Business education realize their potentials in the art of word processing skills acquisitions if the instruction mentioned in learning principle is followed because learning means modification of behavior as a function of practice. Thus, it takes place when the performance of the organism is changed through stimulating contacts with the environment. All the basic elements of curriculum are designed around the learner. Learning is the relationship between stimulus (S) (independent variable) and response (dependent variable) and thus determine how new S-R connections are formed. Learning is an on-going process that is complimentary to other processes like motivation and perception. In line with the above, learning is a relatively permanent desirable change in behavior or conduct as a result of past, prior or previous experience or training. It could be a change in performance which is an index of learning through general activity, practice and experience of the organism. This change is more or less permanent in nature.

Bloom approach of mastery learning is an instructional strategy designed to bring almost every learner to a specified level of mastery. To accomplish this, adjustment must always be

made for individual differences by way of including special feed-back corrective techniques during regular classroom instruction. This current study is related to "Bandura's Social Learning Theory". The reason is that, observing and modeling the behaviours, attitude and emotional reactions of the learner in the area of his intellectual ability is important. Learning primarily involves two principle factors, that is, "teaching and learning". The teacher observes his students in their behaviours to his teaching and attitude through their responses. The same principle is applied in the- study of word processing.

The teacher who is an observer (as he goes round the typing class to check students work) can easily know from the attitude and behaviours of students in their learning of word processing the particular area they his guidance. This theory has eventually provided a way forward to the smooth learning of word processing in Business education in this write up.

2.1.1 Theory of Teaching and Learning Computer

Four Computer psychological learning theories that contribute to teaching and learning computer skills that are of benefit to this study are John Watson (1878 –1959), Gestalt Psychology, John Dewey, Maria Montossori and David Kolb, Jennifer Gromley.

Behaviourism: The term 'behaviourism' was coined by John Watson (1878-1959). Watson believed that theorizing thoughts, intentions or other subjective experiences was unscientific and insisted that psychology must focus on measurable behaviours. For behaviorism, learning is the acquisition of a new behavior through change.

Therefore, word processing enable business education students acquire new skills that have positive influence on them after graduation.

b. Gestalt Psychology-Cognitivism

Cognitive theories grew out of Gestalt psychology, developed in Germany in the early 1900s and brought to America in the 1920s. The German word gestalt is roughly equivalent to the English configuration Gestalt views duration or pattern and emphasizes the whole of human experience. Over years, the gestalt psychologists provided demonstration and described principles to explain the way we organize our sensations into perceptions. Business education students practice word processing theory learn in the classroom through demonstration; as they focus their eyes on the document they type with their fingers on the home keys of the keyboard; this enable them become more skillful. Gestalt psychologist criticizes behaviorists for being too dependent on overt behavior to explain learning. They propose looking at the patterns rather than isolated events. Gestalt views of learning have been incorporated into what have come to be labeled cognitive theories.

Two key assumptions under-lied this cognitive approach; that the memory system is an active organized processor of information and that prior knowledge plays an important role in learning. Cognitive theories look beyond behavior to consider how human memory works to promote learning, and an understanding of short term memory and long term memory is important to educators influenced by cognitive theory. They view learning as an internal mental process (including insight, information processing, memory and perception) where the educator focuses on building intelligence and cognitive development. The individual learner is more important than the environment.

These theories of learning play a role in Business education. Cognitive theory is used in this study because it corresponds to the purpose of this study. Built on the work of Jean Piaget and Jerome Bruner, constructivism emphasizes the importance of the active involvement of

learners in constructing knowledge for themselves, and building new ideas or concepts based upon current knowledge and past experience. It asks why students do not learn deeply by listening to a teacher, or reading from a text book. To design effective teaching environments, it believes, one needs a good understanding of what students already know when they come into the classroom. The curriculum should be designed in a way that builds on what the students already know and is allowed to develop with them. Begin with complex problems and teach basic skills while solving these problems. This requires an understanding of students' cognitive development, and constructivism draws heavily on psychological studies of cognitive development. This theory is useful to NCE III office education students because, they are already familiar with word processing right from the beginning, skills have already been built in then and they are to develop the skills by constant practice.

Jennifer Gromley Collaboration Theory of Learning with Computers

This theory states that students learn better when they work in groups to solve a problem. Project-based learning (working together on real-life class projects), (splitting students into 'expert' groups who report back to each other), and other cooperative learning methods help students to solve more difficult problems than they could on their own, learn from each other, and build critical team work skills. Educational computing researchers are designing applications that allow students to work collaboratively by linking many classrooms or many students in a classroom. This project has resulted in increased students' learning and motivation. Students in the word processing class seem to learn better when they are many because they learn from each other especially in the area of speed and accuracy which enhance their level of skills. Students who used the computers collaboratively showed better results on tests of deep understanding of the topic, using what they had learned in a new situation, learning more for understanding (rather

than just to pass a test), and also score higher on standardized tests (Mamman and Nwabufo, 2014). These findings collaborate with the benefits of students working in groups in conventional classrooms. This theory is related to this study because the researcher found out that business education teachers can have students engage in e-mail discussions with an outside 'experts' such as another teacher or another business education students in the classroom.

2.2.1 Concept and History ofBusiness Education

Business education is that aspect of the total education programme that provides the knowledge, skills, understanding and attitude needed to perform in the business world as a producer and/or consumer of goods and services that business offers. This also includes office administration and the training of the teachers in this sphere. The scope of business education covers the functions of management and advancement in occupations which has to do with office. (Aliyu, 2002), Amoor and Udoh (2008) noted that business education plays a significant role in the economic development by providing knowledge and skills to the learners thereby enabling them to adequately impact knowledge to others and handle sophisticated office technologies and information system.

This approach emphasizes that business education is education about business and for business. All planned experiences that relate to business and its environment that are systematically undertaken with career focus on one or other of the cognate fields would be classified as education for business, whereas education about business is one offered for all students in the school system irrespective of their career aspirations. Business education is not only for the business students, it makes a direct contribution to the education of all students.

Objectives of Business Education:

i. To develop the skills, knowledge and abilities of students to their maximum, to manage their business and economic system.

ii. Toimprove personal qualities and good attitudes needed in personal and employment situations.

iii. To guide individual for suitable job placement in business education.

iv. To develop and train skillful teachers, who will teach business studies in junior secondary schools.

Business Education, nay vocational education in Nigeria has a poor history. Given its humble beginnings, this aspect of education was misunderstood by educators in the larger society. The society had been led to believe that business education is for those who are incapable of pursuing academic programme. Against this background, Business education has made slow progress from its earliest times to date (Okwuanaso, 2007).

In Nigeria, the Royal Society of Arts (RSA) controlled Business Education through the conduct of examinations in commercial subjects. This body continued to regulate the study of business subjects, even after the establishment of West African Examination Council (WAEC) in 1952. It was in 1960 that WAEC started acting as agent for this body. Among other things, the objectives of RSA were to certify students in business education institutions (formerly commercial schools). By the external regulation of what was taught in commercial schools, the curricular were not structured to meet specific national development needs. Furthermore, the trainees were given scanty or no general education to supplement their chosen areas of training. As declared by Okwuanaso (2007), in December, 1972, WAEC took over the conduct of examinations in commercial subjects from RSA. Even so, did not introduce more general education into the curriculum of business subject offered in

commercial schools. Thus, the graduates of these commercial schools were unable to secure admission in tertiary institutions. For this reason, the image of business education remained tarnished as a programme for academically weak students.

Today, more general education has been introduced in the curriculum, colleges of education and universities are offering business teacher education programme at the Nigerian Certificate in Education (NCE) and degree levels respectively. According to Aliyu, (2002), University of Nigeria Nsukka, Ahmadu Bello University, Zaria started the programme in 1975/76 and 1977 academic year. A host of tertiary educational institutions (colleges of education and polytechnics) now offer business education programme at different levels. Thus, business education has come to occupy its rightful place in the development of Nigeria.

2.2.2 Origin of Computer

Computer, being a diverse and rapidly expanding spectrum of computer technologies, assist in teaching and learning process. According to Akarahu (2010); the instructional technique known as computer aids teaching, learning and practice. In her own view, Ugboaku (2010) has it that computer is used as an individualized method of instruction, including other instructional materials which enable the students to interact with the computer in a teaching and learning manner.

The student may ask question and feed in answers through a keyboard. The computer responds by printing out comments, answers and questions. It gives room for independent and individual study. The business education teacher can make use of computer so as to represent the "automated chalkboard". In the view of Olatoye (2004) in Akarahu (2010), the computer has a promise of accelerating progress in learning and teaching than it used to be by harnessing more powerful tools and possibilities.

Computer technology provide students and teachers with unprecedented opportunities to transform the teaching and learning process, from the most command simple uses to the most sophisticated. In view of this, Wilfred (2005), in Akiti and Onyema (2010) highlighted that; computer is an instructional medium that facilitate teaching and learning. This application may come from the teacher or the instructor with the students in that the teacher who is more experienced can come up with what is considered suitable for the students and the students also can be allowed to initiate the topic he has by exploring and manipulating the computer at the course of the learning experiences.

In the early 1940s, the first electronic computers, the Atanasoff Berry Computers (ABC) and the Electronic Nator, Integrator, Analyzer, and Computer (ENIAC) were built. The ABC was the first computer to calculate using vacuum tubes. The ENIAC was a war time special purpose computer. Several years later in the 1949, the first general purpose computer – Electronic Delay Storage Automatic Computer (ESDAC) was completed. In 1951, the Sperry and corporation built the Universal Automatic Computer (UNIVAC).

It was the first commercially available computer. In the Mid 1950s and early 1960s collaboration between educators at Stanford University in California and International Business Machines Corporation (IBM) introduced Computer select elementary schools. Initially, Computer programs were a linear presentation of information with drill and practice sessions. These early computer systems were limited by the expense and the difficulty of obtaining, maintaining, and using the computers that were available at that time.

Programmed Logic for Automatic Teaching Operations (PLATO) system, another early computer system initiated at the University of Illinois in the early 1960s and developed by control Data Corporation, was used for higher learning. It consisted of a mainframe computer

that supported up to 1000 terminals for use by individual students. By 1985 over 100 PLATO systems were operating in the United States. From 1978 to 1985 users logged 40 million hours on PLATO systems. PLATO also introduced a communication system between students that were forerunners of modern electronic mail (messages electronically passed from computer to computer). The time-shared Interactive Computer-Controlled Information Television (TICCIT) system was a computer project developed by Mitre Corporation and Brigham Young University in Utah (Arnold, 2000).

A recent development with far ranging implications for computer is the vast expansion of the Internet, a consortium of interlinked computers. By connecting millions of computers worldwide, these networks enable students to access huge stores of information, which greatly enhances their research capabilities. Computers were becoming smaller, faster, and more powerful everyday and they were being applied to more varied tasks. In 1956, the first compact transistorize computer system was introduced.

A few years later in 1960, the first integrated circuit was produced by Jack Billy of Texas Instruments. In the mid-1960s minicomputers began appearing.Information that helps in teaching and learning or encourages interaction can be presented on computers in the form of text or in multimedia formats, which include photographs, videos, animation, speech, and music. The guided drill is a computer program that poses questions to students, returns feedback, and selects additional questions based on the students' responses. Recent guided drill systems

incorporate the principles of education in addition to subject matter knowledge into the computer program.

In the classroom where teaching and learning normally take place, both the teacher and the students control the computer, this permits information to be reviewed or examined out of sequence. Related materials also may be explored. In some group instructional activities, the lesson can progress according to the dynamics of the group. (Eyitayo, Eyitayo, 2007).

2.2.3 Concept and Origin of Typewriter

A typewriter is a machine which can print letters on paper by means of keys. When the keys are struck with the fingers, they make an impression on paper, via an ink laden ribbon.
A typewriter can also be seen as a machine that produces writing similar to print. It has keys that you press to make metal letters or signs that hit a piece of paper through a fabric (ribbon) covered with ink. Typewriter has been a very useful office equipment in most of the offices. Though the earliest machine known as typographer was built in 1929, but the main typewriter which resembles the modern ones was invented in 1867.

The first commercially produced typewriter was invented in the year 1868 by American Christopher Latham Sholes, Frank Haven Hall, Carlos Gidden and Samuel W. Soule in Milwaukee, Wisconsin. The QWERTY typewriter keyboard was produced by Remington on March 1, 1873. But this was slowly adopted by other typewriter manufacturers because the typebars strike upwards, the typist could not see the characters as they were typed.

In the year 1910, the manual or mechanical typewriter was made standard, but there were minor variations from one manufacturer to another, because most typewriters followed the concept that each key was attached to a typebar that had the corresponding letter molded, in reverse, into its striking head. When a key was struck briskly and firmly, the typebar hit a ribbon

making a printed mark on the paper wrapped around a cylinder platen roller. The platen was mounted on a carriage that moved left or right, automatically advancing the typing position horizontally after each character was typed. In most of the early typewriters, the typebars struck upward against the paper, pressed against the bottom of the platen, so the typist could not see the text as it was typed. What was typed was not visible until a carriage return caused it to scroll into view. Before the shift key, typewriters had to have a separate key and type bar for uppercase letters. However, the shift key required more force to push and was operated by the little finger, it was difficult to hold the shift key down for more than two or three consecutive strokes.

To facilitate typewriter use in business settings, a tab key was added in the late 19th century. Before using the key, the operator had to set mechanical tab stops which are designed to help the carriage when the tab key was pressed. The first models had one tab stop and one tab key, later ones allowed as many stops as desired, and sometimes had multiple tab keys, each of which moved the carriage a different number of spaces ahead of the decimal point to facilitate the typing of columns with numbers. A typewriter cannot be programmed to act in a certain fashion and without specific input from the operator. A typewriter does not recognize when an error has been made and presumes every action deliberate.

Typewriters are only used to type up things neatly onto a sheet of paper, but a computer can be used for surfing the web, learning communicating and entertainment. A typewriter is not multi-functional as a computer. Typewriters are only used to type up things neatly onto a sheet of paper, but a computer can be used for surfing web, learning, communicating and entertainment. (htpp://typetisdale-typetisdale).

2.3 Word Processing in Business Education

Word processing in business education is the use of the computer hardware and software to create, edit, view, store, retrieve and print textual materials, for example, letters, memos, documents etc. Word processing in Business education enable both the teachers and students to add graphics and pictures to the document, find typing easier because of the word wrapping facility (automatic return of the cursor to the next line when it reaches the end of a line), edit and update easier and faster as they would not need to start all over again.

Use of colors, fonts type, styles and special effects like shadow, strike through, etc. makes word processing documents more beautiful and fanciful. It prints out all copies as original. Word processing is one of the core courses in business education indicated by Amoor (2010).

Before the advent of computers, typewriters were used to produce textual materials. Even up till date, typewriters are still useful more especially, manual typewriters because they are operated manually without the use of electricity. But they have many limitations and disadvantages which computers have come to solve. Though a manual typewriter is useful, it cannot be compared toa computer

Word processing in Business Education (formerly known as typewriting) is one of the most important courses offered in business education in all the Federal Colleges of Education in North-west zone Nigeria. It is a Three Credit Units course at 50 words per minutes (speed and accuracy). The course contents according to the National Commission for Colleges of Education (NCCE) at NCE III level are:

a) Legal documents, layout of documents and job specifications, speed development/consolidation, advanced display work, literary work and itinerary. The mandate of NCCE is that students should be exposed to the following, given the information need of today's world of work – Hardware and Software. Operating procedures including ability to activate computer and other devices:

b) keyboarding skills consolidation, inputting text, speed development/consolidation

c) text editing skill acquisition, spellings and grammar check

d) Adding, deleting and amending text, and mail merge.

e) Formatting text, display text and layout through: tabulations, displays, report, notices, minutes legal documents

f) Printing of documents, activate printer and print documents.

g) Justification: It is against the backdrop of the pressing demands: societal change in economic needs that has necessitated the inclusion of technological advancements and their practical application of graphics in textual documents (NCCE Minimum Standard, pages 36 – 37).

Word processing is particularly well suited for repetitive documents such as personalized form letters or contracts, because once a standard document is entered, it can be called up on the screen and edited for a special use in seconds. For this reason, the researcher is of the opinion that learning word processing with Microsoft computer will influence office education students of Business Education at Federal Colleges of Education in Kano because it helps the students behind the keyboard to create a good looking written document compared to typewriting with manual typewriter. Though a typewriter is still useful because it can be operated manually without electricity, it cannot be compared to computer.

Before the advent of word processors, typewriters were used to produce textual materials. Even up till date, typewriters are still useful more especially, manual typewriters because they are operated manually without the use of electricity.

Word processor has so many advantages over manual typewriter and they includes:

a) The printing quality of computer printout/output is far better than both the electric typewriter and manual typewriter.
b) Many copies of the printout can be made compare this to the use of carbon paper use in typewriters for making more than one copy.
c) All copies of a computer printout are original. That is, there will not be any difference between any of the printed copies in terms of quality.
d) The word wrapping facility (automatic return of the cursor to the next line when it reaches the end of a line) in word processors make typing easier as you will not need to push the carriage return when you get to the end of a line as the case in typewriters.
e) Graphics and pictures can be added to documents
f) There are special facilities like spelling and grammar checker, automatic table generators, auto formats, etc which make world processing easier and faster.
g) Editing and updating is easier and faster as you would not need to start over again (i.e if you need to edit an already typed and saved document). Necessary corrections will not be made where applicable.

Colors, font type styles and special effects like shadows, strike through etc makes world processing documents more beautiful and fanciful. Word processing is probably the most commonly used microcomputer application. Nearly everyone needs to create written documents. Word processing vastly simplifies the task of writing and revising these documents because they

have to be keyboarded only once; editing can then be done quickly and as many times as necessary. In business education, word processing packages on microcomputers have virtually replaced typewriters for creating memos, letters, business report, and other documents.

Word processing is particularly well suited for repetitive documents such as personalized form letters or contracts, because once a standard document is entered, it can be called up on the screen and edited for a special use in seconds. For this reason, manual typewriter has been replaced with word processing. The word processing program is loaded into memory and takes control of the computer. Then, the text of the document is typed, and editing commands are used to revise it. Additional commands allow you to control how text will look on paper when it is printed. The document can then be saved on disk to be recalled later. When all the editing is completed, the document is sent to the printer. The basic features of word processing in business education are:

a. Easy correction – if, using a simple typewriter, the students makes an error which cannot be corrected by the use of correcting fluid, the whole page – if not the whole document has to be retyped. Using a word processing program, the document being typed can be stored in the memory of the computer. In the event of an error, only the error itself has to be corrected. This can then be printed again without retyping the other parts.
b. Easy revision –sometimes when reading through a letter or document that has just been typed, it becomes necessary that it would be better if the positions of two paragraphs were interchanged. Using a simple typewriter, that would mean a complete retyping of the whole page. Using a word processing package, it is quite simple to interchange paragraphs and the revised document can be printed without retyping.

c. Justify text as desired – a word processing package allows you to ‘justify; or line-up the left-hand side of a document, the right-hand side, or both sides.

d. Multiple copies of documents – if the same letter is to be send to many people, it is easy to change the name and addresses to which a copy is to be sent without having to retype the whole letter.

e. Spelling check – a word processing program may include a spelling check. This compares each word in a page with a built-in vocabulary or list of words.

f. It tells you if there is any word in the page that is not in the vocabulary. It also suggests word that could be used in place of the misspelled word, and by pressing one key the incorrect word can be converted to the correct word.

g. Saving a document – apart from keeping a paper copy of any document, it is possible to store the document either in the computer hard disk or on a ‘diskette’.(Eyitayo, Eyitayo, Akeju 2007)

2.4 Need for Computer in Learning Word processing in Business Education.

The world is advancing at a rapid rate. Events have moved from manual to the electronic stage with the computer at the centre. This development has brought a lot of innovations and revolution into teaching and learning at all levels of education. The world is now in the age of information technology or computer age, hence, there is need to keep abreast of time.

The manual way of doing things which causes boredom is no longer the order of the day. Computer education is the effort or the ability to make the generality of the people (students in particular) computer literate. No wonder Ibrahim (2011) confirmed that,’ it is natural then that whatever affects the students is of interest to the large society’ Computer literacy means ability to tell the computer what you want to do and understand what the computer says. As asserted by

Ajibade, (2006), to be computer literate amounts to be able to read, write and speak the language of the computer.

According to Omeje, (2008), a computer can present words to be spelled, sound to be made, instructions to be followed, images and symbols to be responded to touching. Computer is used to evaluate students' performance and direct students backward, forward and sideways for appropriate learning activities. It is patience memory and endless capacity for details are assets that defy competition from ordinary teacher. In agreement with Baugher (2006), Elkhalm (2000)inOmeje (2008) said that computer might also be used to handle the extremely complex programmes that are necessary for more individualized learning.

In his idea, Fajola (2001) asserts that the computer is diligent and consistent in its mode of operation, as it does not suffer from tiredness or lack of concentration like human beings. Computer performs multi-functional roles in teaching and learning processes at all levels. Ajibade (2006), declared that computer is used to mix colour, separate colours, scan, draw, design various things and create charts and graphs for instructional purposes. According to Adekemi (2001), information is stored in manual files in the computer magnetic disc and retrieved when needed. The computer provides dynamic interaction between students and instructional programme not possible with most media. It produces significant time saving over conventional classroom instruction.

It allows students' control over the rate and sequence of their learning. It gives appropriate feedback. It promotes individualized instruction through personalized responses to learner's action to yield a high rate of reinforcement. It provides a more positive effective climate especially for slow learners.

2.5 The Role of Business Education Teacher in the Typing Laboratory

The classroom teacher will never be replaced by programme of self-instruction**.** Rather**,** he will be freed to guide the learning of his students in ways that only a human being can. In using computer for instruction, the teacher's role is hypothesized as changed basically a learning facilitator. His duty of delivering lectures changes to that of guide and problem solver.

The teacher prepares the learner not only to do but to know under what circumstances the knowledge they acquire should be applied in professional setting.(Igbekharka, 2014).

In his words, Aliyu (2013), said that it is recommended that special treatment be given to the common difficulties encountered in typing and that this training should be handled in both methods and in the typing laboratories. Prospective business teachers should be required to demonstrate a high degree of skill and proficiency in word processing. Equally important is the suggestion that training be given the undergraduate in the various approaches that may be used in presenting the keyboard to a beginning class. It is also recommended that higher speed standards be required of the prospective business teacher. It is further suggested that standards must be enforced if they are to be effective and that the prospective business teacher should be required to measure up to such course standard. At the school, the instructor is the manager of the learning process. The instructor decides when the students should work with laboratory equipment. According to Zakari (2008) in Onwuachu (2012) computer is fast replacing the manual typewriter, and even now computer is found everywhere. The goals are agreed upon in consultation with the teacher. The teacher decides what the students should learn and ascertain how the students' goal can best be achieved. Technology is a wonderful tool that can be used to assist teachers and students in the classroom; teachers should be encouraged to use technology to assist themselves in their role. Effort should be applied in the direction of speed and accuracy

according to the requisites and proficiency. Quality of performance, speed and accuracy being very important, effort must be directed in such a way as to secure advancement in both.

2.6 Review of RelatedEmpirical Studies

A lot of authors/researchers have contributed in one way or the other to ensure the accomplishment of the effects of computer and typewriter on students' skill acquisition in word processing in business education. Therefore, seven researchers' works that relate to this have been used to help the present research work. Among them includes:

Adeboye (2000), Isah (2004), Aminu (2006), Akiti and Onyema (2010), Audu (2013),Mamman and Nwabuiko (2013, RematuJimoh (2015).Adeboye (2000) carried out an experimental research on the topic "Comparative analysis of computer and typewriter usage in increasing personal interest on students' learning word processing at Gworon-Dutse, Kano State. The objective of the study was to examine the mastery learning of computer and typewriter and to identify if personal interest is increased when both the students and the teachers were effective when using typewriter or computer. Four null hypotheses were tested at 0.05 levels of significance. Pre-test and post-test designs were used from a selected population from four(4) secondary schools, two from private and two from public schools. The researcher used students from public schools as experimental group, while Students from private schools were used as control group. Two major instruments; pre-test and post-test were used to ascertain equality of the groups and divided the students into ability groups. Those who scored 70% and above were classified as high achievers with computers, while those below 50% were the low achievers because they made use of manual typewriters.

The second major instrument, the post-test was twenty (20) questions based upon the aspects of computer and typewriter usage taught. The mean standard deviation and t-test for the pre-test for the two groups are shown below:

Hypothesis 1 – there was no significant difference between students exposed to the mastery learning of computer and those with manual typewriter. The pre-test results of the two groups: experiment and control groups revealed that there was no significant difference that existed between the groups before the commencement of the treatment. This means equality and to test the first null hypothesis, the mean and standard deviation computed. The researcher concluded that the students' interest could be aroused if teaching word processing in business education with computer is made more effective. There is evidence from the study that there is now improvement in the teaching and learning of computer studies because; the researcher observed that computer arouse students interest in learning word processing more than typewriter .Adeboye (2000) noticed that among the 200 students used as sample, over 88% of them had interest in computer more than the manual typewriter. This made most of the students to credit computer studies in the outcome of their examination results and the method of teaching adopted by their teachers.

The difference here is that the study was conducted at secondary school but the present study is conducted at institution of higher learning. This study has a major contribution to the present research because its major findings stressed that the interest shown by both teachers and students in computer made them became higher achievers in teaching and learning computer studies. Though the work of Adeboye was guided by a hypothesis but there was no research question that guided the hypothesis.

Isah (2004) conducted a survey research on the "The influence of computer usage on learning word processing in Katsina State. It was a descriptive survey research which used questionnaire for data collection. Seven operational hypotheses were stated.

Ten (10) secondary schools were randomly selected from the five inspectorates with sample population of 300 students and 30 teachers. The study focused on the adequate usage of computer that promotes students'learning. Findings from the study indicated that the teachers sampled from these ten (10) schools were professionally and academically qualified to teach computer at secondary school level. The study however, discovered acute shortage of computer teachers in some of the schools, the few ones available maintained much workload ranging from 25 – 30 periods per week. Consequently, students' learning experiences in computer in some of the schools were below average. The researcher properly observed from the study reviewed that the sampled schools were randomly drawn from an unspecified population of secondary schools in Katsina State. The study is related to the present study as both focused on teaching and learning with computer on word processing. The study is different from the present study because the present study deals also on the usage of typewriter on word processing in business education at Federal College of Education, Kano State. The past study dealt on secondary school teachers and students while the present study is on students at NCE III levels. The present study is an experimental research while the past was a survey study. It was discovered that there was adequate materials for teaching and learning but inadequate teachers to teach, there was no objective of the study, no statement of the problem but there was research question and hypotheses were tested.

Aminu (2006) conducted a survey research on the 'Influence of effective utilization of computer and typewriter on teaching and learning word processing at senior secondary schools, at Adamawa State". The following purposes among others which were to:

i. Determine the adequacy utilization of computers and typewriters in teaching and learning in secondary schools.

ii. Analyse the reasons for increasing turn-up of students in computer rather than typewriter in every academic year

The researcher drew sample population which was made up of 250 students, 25 teaching staff respectively, case study was adopted which covered the Adamawa Secondary Schools and questionnaires were used to obtain data. Based on the data collected and analyzed the following major findings among others were made. (a) 96.5% disagreed and 3.5% agreed that students make good use of computers more than typewriters (b) in research question 2, 90.4% agreed and 9.6% disagreed that there are increasing turn-up of students in computer in every academic year.

From the study, the researcher observed that the purpose of the study was analyzed, the sample population was adequate and methodology used was descriptive research design. The findings reflected some of the realities in our schools even at Federal College of Education in Kano State where students are left with obsolete worn-out manual typewriters only. Such variable like, retraining of the teachers, provision of facilities that will enhance teaching and learning, workshops and seminars were not identified in the researcher's work. However, the work is of great benefits to this research work because, the researcher mentioned that the secondary schools management board should embrace the use of computers in the their curriculum; meanwhile, more teaching and learning materials should be provided in this 21st Century to avoid being laid off. This has motivated the researcher to know that provision of

computers are very important as word processing in business education is very much relevant in our society today.

The past research was on teaching and learning word processing while the present study is on the effects of computer and typewriter on students' skill acquisition on learning word processing in business education.

The findings of this study is of benefit to the ongoing research which intends finding out if a manual typewriter facilitate learning of word processing more than computer. Though the study made some contributions to the present study, however, present study is an experimental design while the past study used survey design,

Akiti and Onyemah (2010) carried out a study on ' Computer and the Strategies used in achieving the aim of word processing, in Asaba, Delta State" The purpose of the study was to identify the benefits of computer education in teaching and learning keyboarding rather than manual typewriter. The study used only one research question which read, "What are the impacts of computer on teaching and learning keyboarding to both the teacher and learners in the classroom? The researcher used simple descriptive survey research design in his methodology, the population was (20) teachers and one hundred (100) students, the questionnaire was the instrument used for gathering the data. The study identified among others that computer education in the classroom enhances teaching and learning and also improves students' skills in keyboarding rather than typewriter . The problem was that more computers were needed to enable them have one computer per student for a better result. Akiti and Onyemah (2010), recommended among others that more computers should be supplied to the students for effective teaching and learning in the classroom.

There was no statement of the problem, no null hypothesis for proper statistical analysis and the questionnaire was not all retrieved.

However, the research work has helped this study because it drew the attention of the study to the benefits both teachers and students derived from computer education on learning keyboarding. It has also helped this research work in the sense that office education students need to avail themselves in the constant practice of word processing with Microsoft word computer and Mavis Beacon typing to improve on their speed and enhance their skills. The difference is that there is statement of the problem and hypothesis in the ongoing research study. The two studies are experimental research and also used students for the studies. The past study was on keyboarding while the present study is on word processing generally.

Audu (2013), conducted a research study on the topic: " Comparative study of computer and typewriter as Motivators of word processing in institution of higher learning at Gusau, Zamfara State". The following objectives among others were to:

i. identify whether students' learning word processing in Zamfara State is better motivated by the use of the modern computer or the obsolete manual typewriter.

ii. determine if inadequate power supply reduces students' learning as it could not enable them work with computers or manual way of learning was more better.

The researcher drew sample population which was made up of 50 students and 5 teachers respectively, case study was adopted which covered Gusau higher institutions and questionnaire was used to obtain data. Based on the data collected and analyzed the following major findings among others were made: (a) In research question two(2), a total of 94.0% agreed that students' learning is better motivated by computer rather than manual typewriter, while 6.0% disagreed (b) a total number of 93.3% confirmed that though students' learning was seriously affected by

inadequate power supply but it is better than manual typewriter which cause weakness of body, only 6.7% agreed that manual typewriter is better because it can be used at any time.

From the study, the researcher observed that the purpose of the study was analyzed, the sample population was adequate and methodology used was survey research design. From the past study, neither research question nor hypothesis was tested. The finding is ideal to Federal College of Education Kano where manual typewriter is the order of this twenty first century. Such variables like, the need for adequate power supply to enhance teaching and learning, support students' learning word processing with computer, identification of skills that needed high concentration when practicing word processing were also discovered.

The researcher used a sample population of 50 students and 5 teachers, it was a survey study while the present study is on experimental research. There are null hypotheses in the present study while there was none in the past study.

Igberaharka (2014) was involved on a survey study on the "Relevance of computer and typewriter on Graduates in Delta State tertiary institution, Abraka. The purpose of the study was to determine the effectiveness of the new technology on students' skill acquisition during and after graduation. Among the research questions used was: what are the impacts of typewriter on students after graduation? The researcher adopted a survey research design for the study and the population for the study consisted of 1315 respondents which are made up of 53 lecturers and 1262 students. The sample size consisted of 179 respondents, 53 lecturers and 126 students, the researcher adopted purposive sampling technique.

The mean and standard deviation were employed for the study in answering the research question. The study identified among others that; typewriter cannot provide students the new

skills that exists today, that computer has a great impact both on the NCE graduates and the society at large.

From the study, only one research question was used and the researcher discovered that the purpose of the study was analyzed, the statement of the problem was stated, the sample population was adequate and the methodology was survey design. From the findings above, the present researcher discovered, that computer will enhance students learning presently as they make adequate use of them while still at school. The researcher used a sample population of 53 lecturers and 126 students while the present study used 35, descriptive survey design was used but the present study is on quasi experimental study; there was no hypothesis in the past study. It was discovered that the questionnaire was not retrieved and no hypothesis was tested. From the past study, the present study discovered that manual typewriter does not have any relevance to students even at Federal College of Education, Kano.

Mamman and Nwabuifo (2014) were involved in a research study at Kwara state University on the barriers to integration of computer (Web 2.0) on learning word processing in Nigerian Universities'. The study sought answers to the research question; 'what are the barriers of integrating web 2.0 technologies in the teaching and learning of word processing in business education in Nigeria Universities? Descriptive survey research design was used for the study. A sample of 121 students was used for the study while 21 lecturers used as the number was sizeable for the researcher to handle. Barriers to the integration of web 2.0 Questionnaire (BIWQ) with a split half reliability of 0.89 was used to collect data from the respondents. A total of 142 copies were administered altogether and 138 copies were retrieved and used for the study. Mean standard deviation and ranks were used to analyze the data collected to answer the

research question. Independent t-test statistic was used to test the null hypothesis at 0.05 levels of significance.

The findings of the study revealed that all the items except just two items constitute barriers to the integration of web 2.0 technologies in the teaching and learning of word processing in business education in Nigeria Universities. It was concluded that graduates of business education would not be able to acquire the needed skills and competencies to be able to function effectively in the 21st world of work because of the inherent barriers to the integration of web 2.0 technologies in the teaching and learning of business education courses.

The study was on barriers while present study is on the effects of Computer and typewriter on students' skill acquisition in learning word processing in business education'. The past study used survey research while the present study uses quasi-experimental research, the objective of the study was not stated but the present study stated the objective of the study. All the questionnaire was not retrieved. Inclusively, the past study was on teaching and learning business education courses but the present study is on word processing in business education. The study identified among others the barriers, students' limitations with computer, poor internet service, use of obsolete materials for teaching and learning, inadequate infrastructural facilities, insufficient professional development and training. The present study share the same view with this past study because up to date Federal College of Education Kano is still using obsolete equipment for teaching and learning word processing in business education.

RehimetuJomoh(2015) carried a research study on the usage of ICT among students in Auchi Polytechnic. The survey research design was used in this study which examined the use of computer among the students in Auchi Polytechnic. Three research questions were posed to

guide the study and a questionnaire was used to collect data from a sample size of 320 students. The collected data were analyzed using descriptive statistics.

The result showed that students overall level of competence was at moderate level, while they are able to carry out basic computer operations, low competence was found in the level of computer competence among male and female students. The study recommended among others that modalities should be developed to implement government policy regarding developing students' competence. Furthermore, there was the need for management to provide computer training for students to allow them improve on their computer competencies and attain high level of computer competence. The present study was a quasi experimental research and it is also on computer usage. There was no hypothesis on Rehimetu's study, no objective of the study. The study is among the students, drill and practice. It is different because it was a descriptive survey research while the present study is a quasi experimental study.

2.7 Summary of the Reviewed Literature

In the above chapter, literature on theoretical frame work was reviewed on cognitive learning theory which is paramount to teaching word processing in business education. Word processing in business education is taught both in theory and in practice. The concept of Business Education, objectives of Business Education both to students and the society as a whole were also highlighted.

The chapter also discussed on the concept of computer and typewriter, origin of computer, and typewriter the need for computer on learning word processing in business education, advantages of word processing over manual typewriter, the role of the teacher as a guide, challenges of computer in teaching and learning word processing in business education. Works of related authors were reviewed.

The background to the study was highlighted. Theories related to this work were discussed. Looking at the related studies, it is revealed that research work on the 'effects of computer and typewriter on students' skill acquisition on word processing in business education at Federal College of Education have not been carried out.

The study also discovered that computer influence learning of word processing in business education greatly, the study also discovered that computer is more effective in learning word processing in business education because it does not cause boredom, tiredness – the advantages of using computer is far more better than typewriter. Computer has more accessories enabling students to advance both in knowledge and skills development. Computer protects students from developing muscular and skeletal injuries, back and shoulder pain or discomfort; thus making the exercise more easier compare to using the manual typewriter. Manual typewriter is obsolete, stressful, time consuming, cumbersome and this affect student' interest, curiosity and effectiveness. Computer motivates the learner to learn more, it is less stressful, require less formal instruction, promotes students' interest and creativity that makes it more effective when learning word processing.

It is important to note that many research work have been conducted on usage of Computer and typewriter on learning word processing, but there seems to be no research conducted in respect to Federal College of Education, Kano '. This study was conducted to fill the gap.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter presents the design and methodology that will be adopted for this study under the following sub-headings.

3.1 Research Design

3.2 Population for the Study

3.3 Sample size and Sampling Procedure

3.4 Instrument for data collection

3.4.1 Validation of the Instrument

3.4.2 Pilot Test

3.4.3 Reliability of the Instrument

3.5 Procedure for Data collection

3.6 Procedure for Data Analysis

3.1 Research Design

Quasi experimental research design was used for this study. Quasi experimental research is used for practical demonstration of some identifiable variables in a research. Computer and typewriter are the independent variable while students' word processing in Business Education is the dependent variable. As indicated by Bello and Ajayi (2000), quasi experimental research is a systematically and precisely preserved planned and controlled observation used in research. Sambo' (2005) supported Ajayi and Bello and asserted that quasi experimental has great accuracy in research.

3.2: Population of the Study

The population for this study was one hundred and sixty (160) NCE III students of Office Education option in 2014/2015 academic session in Federal College of Education Kano State. The reason for diverting to office education students is because word processing is one of the core courses offered and, they have passed through rigors of the school system and can also provide relevant information as well. It is shown on table1.

Table 1: Population of the Study.

State	Name Of College	No Of NCE III Students
Kano	F.C.E	160

Source: Record Office of F.C.E Kano.(2015).

3.3 Sampling Size and Sampling Procedure

Purposive Sampling technique was used to select Federal College of Education, Kano. The reason for the selection of the named institution, was because it has reasonable number of students in office education and the researcher is acquainted with the environment of the institution. It is also expected that, because of the long time relationship between the researcher and computer operators in the lab, there would be full cooperation of these staff for effective experiment.

The sample was all the 30 students in office option. These students served for both experimental and control purpose. This is in line with Roscoe (1995) in Uba (2012) who suggested a small sample from the target population in an experimental design. Also Anikweze (2009) in Uba(2012) opined that 'no fixed percentage is ideal, rather it is the circumstance of the study situation that determines what number or what percentage of the population should be studied.

Table 2: Sample Size

State	Name Of College	No Of NCE III Students
Kano	F.C.E	30

3.4 Instrument for Data Collection

The researcher used two instruments to generate the relevant data in this study. The first instrument Speed and Accuracy Achievement Test (SAAT) was drawn from the past NCE III questions which has been moderated and therefore found to be the National Commission for Colleges of Education (NCCE) standard that is, based on the course content of BED 322 "Word processing in Business Education" which is a core course for all NCE III Office Education option. After the administration of pre-test(Appendix II) to ascertain the initial equivalent ability of the students to determine how many words per minutes and the accuracy levels using the conventional typewriters during the first week, the post-test(Appendix III) was given after three weeks of teaching. The instrument comprised of one thousand, two hundred and fifty-five (1,255) strokes at fifty (50 wpm) words per minutes.

The second part of the post-test was "typing mailable documents" (another achievement test – Appendix IV) was a 45 minutes instrument. It tested the students skills and competency of what were taught in the three weeks' period of the experiment and also the level of competency. The instrument was scored based on the correct typewritten copy (white marker board, class website, projector and Computers (programmed with Marvis Beacon Deluxe twenty(20) - as instructional materials). All these serve as teaching and learning tools. The speed skills has 10 marks, accuracy skills over 25 and word processing skills development (Text edition) was marked has 25.

3.4.1 Validation of Instrument

The drafted Pre-test(Appendix II) and post-test(Appendix III) instruments were validated by experts in that field who are experienced Office Education lecturers and have been in the Colleges of Education system for long, for scrutiny. The instruments were also given to experts, who were automatically the researcher's supervisors in the Department of Vocational and Technical education, Business Education Section, Ahmadu Bello University, Zaria; they vetted and their expertise advice was carried out and a final copy was made. In view of the above, Haugen and Becker (2005) in agreement with Jawahir and Sukon (2005) indicated that it is necessary to establish the validity of research instrument by a panel of experts in order to determine its correctness.

3.4.2 Pilot Study

After necessary correction and validation of the instrument, a pilot test of the instrument was conducted at SadatuRimi College of Education, Kano using ten (10) NCE III office education students and a research assistant who was the course lecturer in that Department. This was done in order to ascertain the reliability of the instruments. This College is not part of the population for the study, but its choice was influenced by the location and because of the similar characteristics the College shares with the study area. The researcher visited the College with the introductory letter from the Head of Department, Vocational and Technical Education, Ahmadu Bello University, Zaria. The main purpose of pilot test, is to confirm the suitability of the instrument for its adequacy and effectiveness, to ascertain the clarity, authenticity (Kerlinger and Howard 2000).

3.4:3 Reliability of the Instrument:

The split-half method was used to determine the reliability of the instrument. The instrument was divided into two equal halves(for male and female students). The Spearman Rank Order Correlation Coefficient was used to calculate the reliability estimate of one half (male) and Spearman Brown Prophecy formula was used to calculate the reliability estimate of another half(female) and the reliability of 0.78 was calculated for the instrument. In testing reliability co-efficient Anikweze, (2007) ,in agreement with Bello and Ajayi (2000) confirmed that in general, coefficients between 0.70 and 0.90 are considered good indication of reliability.

3.5 Procedure for Data Collection

The researcher presented a letter of introduction from the Head of Department, Vocational and Technical Education, Ahmadu Bello University Zaria, to the Head, Department of Business Education, Federal College of Education, Kano where the research was conducted. The researcher went to the lecture venue where the office education students were and conducted the experiment of the teaching and administration of test. The data collection lasted for three weeks.

Two contact hours were used per week for teaching both theory and practical(making 6 contact hours lesson). Both groups were exposed to the pre-test which lasted for 10 minutes and was administered in the last 40 minutes of the first contact hour of the first week with the students. The second hour of the week one was used to give lectures/practical lesson on how to use and operate computer focusing more on developing speed, accuracy, text edition and how to display available document.

This aims at investigating how the use of computer enhances students' psychomotor skills in word processing in business education and enable them produce document within the

shortest specified period with 98% accuracy. Normal word processing (typewriting) lectures both theory and practical focusing on National Commission for Colleges of Education (NCCE) NCE III BED 322 syllabus in word processing was followed. This syllabus was used because it gives the National Minimum Standard required for all NCE III (Office Option) in this country.

The practical test was administered to both the control and experimental groups using typewriter and computer. The pre-test (Speed and Accuracy) lasted for 10 minutes (see appendix II) The instructional materials (computer via Marvis Beacon typing test) were introduced to the students. Marvis Beacon Typing Test enhances students' skills in word processing-it dictates typing errors, counts speed, this enable students become more careful as they type and also improve on their speed.

During the first week, the Topic was introduced – Methods of Layout of Business letters" mainly: the blocked method and it was displayed on the Projector for the students to see. "The blocked method is the method whereby every writing begins at the left margin"

The lecture continues on the second and third week. . (See appendix III Lesson Plan, Appendix IV- Blocked Method of layout).

After the lecture during the third week, there was revision, the test was posted (see Post- test Appendix V) in the students class websites and finally, the last 1 hour was used to administer the post-test; the students were allowed to print out the test question themselves from the class websites. The test of effects of computer and typewriter usage on students' skill acquisition in word processing in business education' was marked using the marking scheme – Appendix VI). The results were analyzed accordingly.

3.6. Procedure for Data Analysis

The data collected from the experiment was analyzed using mean and standard deviation. The raw scores obtained from students scores were used to answer the research question. The null hypotheses were tested using t-test statistics to bring out the significant difference between the effects of computer and typewriter usage on students' skill acquisition of word processing in business education.

Decision Rule: If the calculated t-test is less than the table value the null hypothesis was retained, while if the calculated value is greater than the table value, the null hypothesis was rejected. In justification of the use of this statistical test Nwana (2002) stated that the t-test is a formula designed to enable a decision regarding how far within the true difference the value obtained actually is. It made use of the means of the two groups, the standard deviation of the two groups as well as the number of members of the two groups.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter presents the analysis of the data collected for the study. The data was based on test scores obtained from students exposed to the use of computer andtypewriter under the following headings.

4.1 Demographic Analysis of Data

4.2 Answers to Research Questions

4.3 Test of Null Hypotheses

4.4 Summary of Major Findings

4.5 Discussion of Major Findings

4.1 Demographic Analysis of Data

Demographic data analysis of male and female students who were taught speed development and blocked letter production using conventional method of teaching on manual typewriters and those taught using computer-assisted method of instruction.

Table 3: Percentage Distribution of the Students by Gender

Gender	Frequency	Percentage
Male	15	50
Female	15	50
Total	30	100

Source: Field Survey, 2014/2015

Table 3 indicates the distribution of respondents according to their gender, it showed that 15(50%) were male and 15(50%) were females. This indicates that both male and female students offering word processing in business education at Federal College of Education, Kano were equal.

Table 4: Distribution of the Students by Performance on both Manual Typewritersand Computer Assisted Method of Instruction.

Gender	Frequency	Percentage
Male	15	60
Female	15	40
Total	30	100

Source: Field Survey, 2014/2015

Table 4shows that the mean performance achievement score of the male students who were taught word processing in business education using both the conventional method of teaching on the manual typewriter and the computer-assisted method of instruction performed better (60%) than their female counterparts(40%) taught the topics using both method of teaching

4.2 Answers to Research Questions

To address this question, data were collect and answers to the four research questions were shown using mean and standard deviation as presented in table 5 to 8.

Research Question one: What is the relative effects of the level of skill acquired by business education students taught speed development in word processing using computer and those taught using manual typewriter in Federal College of Education, Kano? Data collected to address this is presented in tables 5

Table 5:Mean and standard deviation analysis on Skill Acquired by business education Students taught Speed Development using Computer and Typewriter

Groups	N	Mean	Std Deviation	Std Error Mean
Computer: Speed Development (experiment)	15	24.4633	5.84074	.49642
Manual typewriter: Speed Development	15	22.8223	4.16104	.36541

Source: ***Field Study and statistical analyses (2015)***

The result in Table 5 showed calculated mean for the skill acquired by the students taught speed development using computer was 24.4633 while the mean for the skilled acquired by the students taught speed development using manual typewriter was 22.8223. This therefore, implied that students acquire skill in speed development faster using computer than using the

manual typewriter. This further revealed that, students performed significantly better when they are exposed to computer to learn than the manual typewriter.

Research Question Two: What is the relative effects of the level of skills acquired by business education students taught accuracy development in word processing using computer and those taught using manual typewriter in Federal College of Education, Kano?The answer to this research question is presented in Table 6 using mean and standard deviation to analyze the research question.

Table 6. Mean and standard deviation Scores of Skill Acquired by the Students taught Accuracy Development using Computer and Typewriter

Groups	N	Mean	Std Deviation	Std Error Mean
Computer: Accuracy Development (experiment)	15	22.8675	4.37852	1.13052
Manual typewriter: Accuracy Dev. (control)	15	19.3445	4.25385	1.09834

Source: ***Field Study and statistical analyses (2015)***

Table 6 revealed that the mean score for the students taught accuracy development using computer was 22.8675 while the mean for the skilled acquired by the students taught accuracy development using manual typewriter was 22.8223. This therefore showed that, using computer to learn accuracy skills is more effective than typewriter and students performed better when they are exposed to computer than typewriter to learn accuracy development in word processing.

Research question three: What is the relative effects of the level of skills acquired by business education students taught text edition in word processing using computer and those taught using manual typewriter in Federal College of Education, Kano?To answer research question three, data collected were analyzed using mean and standard deviation as shown in Table 7

Table 7 Mean and standard deviation Scores of Skill Acquired by the Students taught Text Edition using Computer and Typewriter

Groups	N	Mean	Std Deviation	Std Error Mean
Computer: Text Edition (experiment)	15	20.3456	4.5691	1.07644
Manual typewriter: Text Edition (control)	15	16.0123	4.4562	1.15057

Source: ***Field Study and statistical analyses (2015)***

Table 7 presents the means and standard deviations of students' scores under both experimental and control groups. The mean score and standard deviation of students exposed treatment (20.3456 and 4.5691) were greater than the mean score and standard deviation of students using manual typewriter (16.0123 and 4.4562). This therefore, signified that students acquire skill in text edition better using computer than the manual typewriter. This further showed that students would easily learn text edition better when they are exposed to computer than the manual typewriter.

Research question four: What is the relative effects of level of skills acquired by business education students taught table creation in document in word processing using computer and those taught using manual typewriter in Federal College of Education, Kano? The answer to this research question is presented in Table 8:

Table 8 Mean standard deviation and Scores of Skilled Acquired by the Students taught Creation of Tables in Document Using Computer and Typewriter

Groups	N	Mean	Std Deviation	Std Error Mean
Computer: Tabulation in document (experiment)	15	24.4578	5.84692	2.19855
Manual typewriter: Tabulation in doc.(control)	15	22.8761	4.57986	1.8425

Source: ***Field Study and statistical analyses (2015)***

Table 8 shows that the mean score for the students taught table creation in document using computer was 24.4578 while the mean for the skilled acquired by the students taught table creation in document using manual typewriter was 22.8761. This therefore showed that using computer to learn table creation in document is more effective than typewriter and students performed better when they are exposed to computer than typewriter to learn tables' creation in document in word processing.

4.2 Null Hypotheses

Results of data used to test the null hypotheses are presented in table 9 to 12. using mean and standard deviation to analyze the research question. This was done in order to determine the

possible difference between the performance of students taught word processing in business education, using computer and those taught using typewriter.

Test of Null Hypotheses One: There is no significant difference between the relative effects of the level of skills acquired by business education students taught speed development skill in word processing using computer and those taught using manual typewriter in Federal College of Education Kano

To test null hypothesis one, post test scores of students taught using computer and manual typewriter to acquire speed skills were compared using t-test statistics at 5% level of significance using mean and standard.

Table 9 t test of Difference between the relative effects of computer and typewriter usage on business education students acquisition of speed skills in word processing among business education students

Variable	N	X	SD	Df.	t.cal	t-crit.	Decision	Sig.
Experimental	15	24.4	5.840	28	2.98	2.04	Rejected	.005
Control	15	22.8	4.161					

Source: Field work 2015

From the table 9 the t-calculated was 2.98 which was greater than the t-critical 2.04 at 5% level of significance. The analysis therefore showed that, there is significant difference on the effects of using computer and typewriter to acquire speed skills in word processing. This means that, students learn speed skills better when they are exposed to the use of computer than typewriter. Therefore, the null hypothesis which states that, there is no significant difference between the effects of computer and typewriter usage on acquisition of speed skills of word processing among students of business education was rejected.

Test of Null Hypothesis two: There is no significant difference between the relative effectsof the level skills acquired by business education students taught accuracy development skill in word processing using computer and those taught using manual typewriter in Federal Collegeof Education Kano. Data collected to analyze the null hypothesis two were summarized in Table 10.

Table 10: t test of Difference between effects of computer and typewriter usage on acquisition of accuracy skills development in word processing among business education students

Variable	N	X	SD	Df.	t.cal	t-crit.	Decision	Sig.
Experimental	15	22.8	4.378					
				28	2.3	2.04	Rejected	.004
Control	15	19.3	4.253					

Source: Field work 2015

To test null hypothesis two, post-test scores of students exposed to treatment were compared with the post test scores of students under control using t-test analysis at 5% level of significant

From the table 10 the t-calculated was 2.3 which was greater than the t-critical 2.04 at 5% level of significance. The analysis therefore showed that, there is significant difference on the effects of using computer and typewriter to acquire accuracy skills development in word processing.

This means that, students learn accuracy skills better when they are exposed to use of computer than typewriter. Therefore, the null hypothesis which states that, there is no significant difference between the effects of computer and typewriter usage on acquisition of accuracy skills development in word processing among students of business education was rejected.

Null Hypothesis three: There is no significant difference between the relative effects of the level of skills acquired by business education students taught text edition development skill in word processing using computer and those taught using manual typewriter in Federal College of Education Kano

To test null hypothesis three, post test scores of students taught using demonstration method was compared with the post test scores of students taught using discussion method. The scores were analyzed using t-test analysis at 5% level of significance (p=0.05).

Table 11: t test Difference between the relative effects of computer and typewriter usage on development of Text Edition Skill in Word Processing Among Business Education Students

Variable	N	X	SD	Df.	t.cal	t-crit.	Decision	Sig.
Experimental	15	20.3	4.569					
				28	2.5	2.04	Rejected	.002
Control	15	16.0	4.456					

Source: Field work 2015

From the table 11 the t-calculated was 2.5 which was greater than the t-critical 2.04 at 5% level of significance. The analysis therefore showed that, there is significant difference on the effects of using computer and typewriter to develop text edition skill in word processing. This means that students learn text edition in word processing better when they are exposed to use of computer than typewriter. Therefore, the null hypothesis which states that, there is no significant difference between the effects of computer and typewriter usage on development of text edition in word processing among students of business education was rejected.

Test of Null hypothesis four: There is no significant difference between the relative effects of level of skills acquired by business education studentstaught creation of tables in a document in word processing using computer and those taught using manualtypewriter in Federal College of Education Kano

To test null hypothesis four, post test cumulative scores of students taught using computer were compared with post test cumulative scores of students under control group.

Table 12: t test of Difference between effects of computer and typewriter usage on Creation of Tables in a Document in word processing among business education students

Variable	N	X	SD	Df.	t.cal	t-crit.	Decision	Sig.
Experimental	15	67.66	8.516					
				28	3.9	2.04	Rejected	.002
Control	15	57.06	7.134					

Source: Field work 2015

From the table 12 the t-calculated was 3.9 which was greater than the t-critical 2.04 at 5% level of significance. The analysis therefore showed that, there is significant difference on the effects of using computer and typewriter to acquire skills in creation of tables in a document in

word processing. This means that, students acquire skill in tables' creation in a document in word processing better when they are exposed to use of computer than typewriter. Therefore, the null hypothesis which states that, there is no significant difference between the effects of computer and typewriter usage on acquisition of skill in creation of tables in a document in word processing among students of business education was rejected.

4.3 Summary of Major Findings

The findings of this work which was carried out to assess the effects of computer and typewriter usage on students' skill acquisition in word processing among business education students in Federal College of Education in Kano State were based on the results of descriptive statistics (means and standard deviation) and t-test analysis. The major findings of this research work were summarized as follow. The results of this work revealed that:

1. using computer to learn speed development skills in word processing is more effective than use of typewriter. (Sig. = 0.05)
2. using computer to learn accuracy development skills in word processing is effective than the use of manual typewriter. (Sig. = 0.04)
3. using computer to learn text edition development skill in word processing is effective than using manual typewriter.
   (Sig. = 0.02)
4. Using computer to acquire creation of tables skills in word processing is effective than using typewriter (Sig. = 0.02).

4.4 Discussion of Major Findings

The study revealed that, using computer has significant effect on students' acquisition of speed development skills in word processing. The use of modern word processing machines such

as computer software and hardware add a great relief to students thereby, enhancing their efficiency. However complicated, the document modifications of layout and corrections are simple and fast. This was revealed by the findings in Table 5 in which the mean score for students exposed to treatment (24.4) was greater than the mean score for students exposed to the conventional method (22.8). The result of t-test analysis also revealed that using computer to learn speed skills of word processing has significant effects on students' skills acquisition. This was because t-calculated (2.98) was greater than the t-critical (2.04) at 5% level of significance. This finding agreed with the report of Onwuachu, (2012) who lamented that, computer is fast replacing the manual typewriter, and students learn how to type faster when they use computer than the conventional manual typewriter.

Table 6 showed a mean score of students exposed to treatment (22.8) was greater than the mean score of students engrossed to conventional typewriter (19.3). The t-calculated (2.3) on table 4.6 was also greater than the t-critical (2.04) at 5% level of significance. This therefore revealed that, using computer in the acquisition of accuracy skills development in word processing has significant effects than using manual typewriter. No more searching of files for the text required, and no more over lowing waste paper baskets. This finding agreed with the study of Akiti and Onyema, (2010) who asserted that, computer is an interactive technology concept which enables the user to interact with the system and make good sentences. In addition computer has the ability to check errors in grammar and spellings.

Table 7 showed the mean score and standard deviation of students exposed to treatment and those engaged with conventional method. The table revealed that, the students performed better as they were used in experiment than when they under the control. This is because, the mean score of students (20.3) was greater when they were used for experiment than when they

were used for control. the mean score of students under control group (16.0). The t-test analysis in Table 8 showed a significant difference between effects of computer and typewriter usage on students' skill acquisition on text edition of word processing. The use of computer eliminates time wastage on routine or manual way of teaching and learning, example, using manual typewriter, copying notes. The screen makes the students' life simple and saves time.This means word processing without tears. The t-calculated was 2.5 while t-critical was 2.04 which means there is a significant difference. This implies that, computer is more effective than manual typewriter in learning text edition skill in word processing. This finding is in line with the findings of Isah, (2004) who described that, the better way of learning word processing is with the use of computers because of their ability to perform many functions that the manual typewriters cannot do.

Another finding of this study is that there is no significant difference between the various skills acquired by students who were taught with computer and those taught with manual typewriter to learn word processing. This finding was revealed in table 9 and table 12. Table 9 showed that the cumulative mean score of students exposed to treatment (67.7) was greater than the cumulative mean score of students under control (57.1). Table 12 indicated that, t-calculated (3.9) was more than t-critical (2.04) at 5% level of significance. This showed that, there is significant difference between the effects of computer and typewriter on performance of students to learn various skills of word processing. This finding agreed with the finding of Mamman and Nwabufo (2014), who found out that among all the studies carried out on the factors affecting teaching and learning of word processing in business education, few have addressed the fundamental issue of how the use of computers installed with Marvis Beacon typing practice can facilitate students' learning mostly in the area of speed, accuracy, good grammar, correct

spellings and in producing mailable documents without boredom while undergoing business education programme at Nigeria Certificate in Education(NCE) level. The good implication of computer is that it will enable the students get good job to improve their standard of living.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter is presented under the following sub-heading:

5.1 Summary

5.2 Contribution to Knowledge

5.3. Conclusion

5.4. Recommendations

5.5. Suggestion for further studies

5. 1 Summary

The study was carried out to comparetheeffectiveness of using computer and typewriter on students' skill acquisition on word processing in business education. Pre-test, post-test quasi-experimental design was adopted for the study. The study had four (4) specific objectives four (4) research questions and four (4) null hypotheses as guide. The entire 160 NCE III office education students formed the population of the study and thirty (30) students in the same office option form the sample for the study. This was then divided into two (2) groups (male and female) with each group having 15 students. Data collection phase lasted for three weeks, where pre-test was given before exposing the students to the treatment variable (computer) and control variable (typewriter).

In data analysis, mean and standard deviation were used to answer all the research questions, while t-test statistics was used to test all the four (4) null hypotheses. All hypotheses were tested at 5% level of significance (p= 0.05).

The analysis of data used to answer research question one revealed that, students exposed to computer performed better than students exposed to traditional manual typewriter.

The test of null hypothesis also revealed a significant difference in performance between students exposed to computer and those exposed to conventional typewriter to learn speed skills of word processing, where the t-calculated values of 2.9 was greater than the t-critical value of 2.04.

In the data analysis used to answer research question two, the result indicated that, students exposed to computer perform better than those exposed to conventional typewriter in terms of learning accuracy skills. The test of null hypothesis two also revealed a significant difference in academic performance between students exposed computer and those exposed to conventional typewriter. This is because t-calculated (2.3) was greater than the t-critical (2.04).

Answer to research question three showed that, students taught using computer performed better in text edition than those taught using typewriter. The test of null hypothesis three also showed that, there is a significant difference between the effects of computer and typewriter on students' skill acquisition of word processing business education. This was revealed by the calculated value of t-(2.5) which was greater than t-critical (2.04).

The finding of research question four also showed that students exposed to computer learn the various skills of word processing better than those taught with manual typewriter. The t-test analysis also affirmed the result by showing significant difference between the effects of computer and typewriter on students performance in learning the various word processing skills. This is because t-calculated (3.9) was more than the t-critical (2.04).

5.2 Contribution to Knowledge

The use of computer in teaching and learning word processing in business education has significant effects than using manual typewriter in Federal College of Education Kano. The good implication of using computer is that it will enable the students get good job that will

improve their standard of living. Computer is relevant to today's knowledge; and as we are in the modern technology,it will enable the students in Federal College of Education, Kano to interact with other students in the other world of technology. This interaction will widen their scope of learning.

5.3 Conclusion

Based on the findings of the study, the researcher concluded that, use of computer in learning word processing among business education students has significant effects than using conventional manual typewriter in Federal Colleges of Education Kano State. This will therefore enable the students to keep abreast with the 21st Century technology which will give them good job and also make them to be self employed after graduation.

5.4 Recommendations

Based on the findings and conclusion of the study, the following recommendations were made by the researcher

1. There is need for curriculum planners to emphasize the importance of using computer when teaching word processing by teachers of business education in colleges of education.
2. Teachers in colleges of education should be encouraged by schools administrators to use computers in teaching word processing as it was found to be more effective than the manual typewriter.
3. There is need for the federal and state governments to equip colleges with adequate computer facilities needed for effective practical.

4. There should be provision by the school management and government for training and re-training of teachers on ICT for them to be literate on how effectively use computer during teaching and learning process.

5.5 Suggestions for Further Study.

The researcher suggests that there is need for further study because the researcher did not cover all the areas

a. Similar study can be conducted in other parts of the country to see if similar result will be obtained for proper comparison.

b. Further study can be carried out on the same topic to see whether differences occur between the performance of male and female students of business education.

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APPENDIX I

APPENDIX II

PRE-TEST QUESTION

SPEED AND ACCURACY ACHIEVEMENT TEST

APPENDIX III

Marking Scheme for Pre-Test(Speed and Accuracy)

Someone once said that your face is your fortune. It may not make you a fortune, but a well-cared-for face can be a great asset in every way. Cleanliness is the foundation of complexion care. Your skin, like a flower, grows and changes as time goes by. If you do not cleanse your skin daily, dead cells and oil accumulate, pores clog, and before long your skin ceases to breathe. What kind of skin do you have? Dry skin tends to have fine lines, looks taut and may flake. Oily skin looks shiny with large pores and absorbs make-up. You may be lucky and have normal skin – soft and just moist enough to look dewy. Choose a suitable freshener because this will make your skin feel delightful. It conditions, tightens pores and stimulates. It ensures that no make-up or cleanser is left on the skin. If you have an oily skin, do not use a moisturizer. Otherwise, look for a light cream that sinks into your face. Mist moisturizer is good because it works well on normal and most combination skins. No matter what type of skin you have, an eye cream is essential. Eyes are the focal point of the face and wrinkles start first around the eyes. Remember: cleanse, refresh, and moisturize one after the other every night and morning. If your skin is extremely oily, blemished or sensitive, you may have many problems. In severe cases see a specialist and follow his advice. A mild case of spots can be easily dealt with in an old-fashioned way. Boil some water and, with a large towel over your head, hold your face over the steaming water for five minutes. This treatment helps rid your skin of impurities by opening the pores and causing perspiration to flow.

Your face is the first thing at which people look. It will give away your age more than anything else; therefore, you must take care of it.

APPENDIX IV

LESSON PLAN FOR BOTH TYPEWRITER AND COMPUTER

Date: May 20, 2014.
Subject: Word processing in Business Education
Topic: The Blocked Methods of Layout of Business Letter
Methods: Demonstration/Problem solving
Time: (8.00 a.m. – 10.00 a.m.)
Duration: 120 minutes (2hrs.)
General Objectives: to teach students how to set out and type blocked letter.
Behavioural Objectives: At the end of the lesson, students should be able to
(a) display the 'blocked style/method' effectively with the aid of computers 98% accuracy.
(b) Type mailable blocked letter with 98% accuracy.
Instructional Materials: (a) Paper Sizes – (i) A4
(ii) A5 (Landscape/Portrait)
(b)A copy of modified blocked letter
© Projector and Computer
Previous Knowledge: a) Students' have been taught the various paper sizes and their uses.
a) Students have been taught the computer skills – how to power on the computer, how to use the mouse and interact with elements on the screen, how to use the functional keys on the key board, how to shut down the computer properly after use.

Introduction of the lesson:
Typing of letters is one of the major things that the typewriter/computer is used for. Letters are of varying types, but they are representatives and advertisements for the people sending them. It is very important that you ensure that the letters you type are well-displayed and without errors. Meanwhile, the major parts in business letter are:

Presentation: The teacher defines the blocked letter thus**:**
Step I: In this style, every writing begins at the left margin; the students read through and copy it down on their note book.
Step II: The teacher clicks on the paper sizes, clicks on the A5 landscape and demonstrates how to type a blocked letter on the computer.
The teacher teaches the students how to click on the computer and get the various sizes of papers.
Step III: the teacher goes round to supervise the students and correct them where necessary.
Step IV: Evaluation – the teacher asks the students the following questions:
a) How many methods of lay out are there in business letters?
Students answer: blocked, indented, and semi-blocked.
b) What style of writing is the letter you have just typed?

Blocked.

Summary: The teacher briefly goes over the lesson. she identifies and corrects points discovered during his inspection of students work.

APPENDIX V

POST-TEST QUESTIONS

BES 321 WORDPROCESSING II (NCE III)

GENERAL INSTRUCTION

1. This test is made up of two(2) tasks. All tasks must be attempted.

2. Begin each task on a fresh sheet and type your registration number only at the top of each and every sheet of paper you use.

3. Read carefully and follow the instructions for each task.

4. The test shall commence with Speed and Accuracy Test (warm-up task one) which will last for ten(10) minutes only. At the end of ten minutes, the invigilator would collect and initial your typescript to Task I and the typescript would be returned to you for insertion/inclusion in the answer folder.

5. You are allowed five(5) minutes after Speed and Accuracy and before the commencement of other tasks to read through this question paper. During this time, you are not allowed to start typing.

6. All your typescripts should be submitted in your folder.

Time Allocation

Speed and Accuracy	=	10 minutes
Reading Periods	=	5 minutes
Production of Tasks I – II	=	45minutes
Total Time	**=**	**60 minutes**

APPENDIX VI
MARKING SCHEME

(MARKING SCHEME)

Task I	**=**	**10marks**
Task II	**=**	**90marks**

Penalty on errors:
Each minor error attracts minus half
Each major/technical error attract minus 1 mark.

Letter Errors Penalties.

a.	Wrong paper size used	2 marks.
b.	Wrong date	1
c.	Omission	2
d.	Name and address not in single line	1
e.	Subject heading blocked or centred wrongly	1
f.	Complimentary close not correctly placed	1
g.	Signatory name wrongly placed	1
h.	Signature inserted wrongly	1

The Principal
Owu Grammar School,
OWU
Ogun State.

Dear sir,

APPLICATION FOR ECONOMICS TEACHER.

In reply to your advertisement in the Daily trust of Octorber 18, 2011, I wish to apply for the post of Economist teacher in your school.

I was born in Ayowa thirty-five years ago. I attended Loyola College, Ibadan, from 1994 to 2000. At the end of my secondary education, I attended Ogun State University, Ago-Iwoye, where I studied Business Administration. I left the University in June 2005 with a Second Class (Lower) honour degree.

During my National Youth Service corps, from 2005-2006, I served as a raining Officer with MessrsBamidele and sons Enterprises, Abeokuta. Although, I have not undergone any teacher training course, I believe I can teach Economics, in fact, any commercial subject satisfactorily in a secondary/tertiary institution. In view of this, I think I am qualified to teach in your school.

I attached herewith photocopies of my curriculum vitae and credentials. I should be available for interview any day of the week, provided I am given at least one week notice. You may wish to contact the Head of Department-business Administration, Bamidele and sons enterprise for further information about me.

Thanks.

Yours faithfully,

Aisha Dele eze.

APPENDIX VII

Table 4.2 Mean and standard deviation of post-test scores of students taught using computer and typewriter to acquire accuracy skills of word processing.

Acquisition of Accuracy skills of Word Processing (35 marks)			
S/No	Experimental Group (Use of Computer)	Control Group (Use of Typewriter)	Decision
1	26	19	
2	22	21	Use of computer to acquire accuracy skills is effective than manual typewriter
3	30	25	
4	22	18	
5	20	20	
6	21	21	
7	20	27	
8	19	14	
9	26	12	
10	25	16	
11	28	20	
12	24	23	
13	13	22	
14	19	13	
15	27	19	
Total	342	290	
Mean	22.8	19.3	
Std. Dev	4.37852	4.25385	

Source: **Field Study 2015**

Table 4.3 Mean and standard deviation of post-test scores of students taught using computer and typewriter to develop word processing skills.

Development of *Word Processing Skills* (30 marks)			
S/No	Experimental Group (Use of Computer)	Control Group (Use of Typewriter)	Decision
1	14	19	
2	17	10	Use of computer
3	24	09	to develop word
4	21	14	processing skills is
5	19	20	effective than
6	29	21	use of manual
7	20	12	Typewriter
8	25	13	
9	26	12	
10	18	16	
11	15	22	
12	21	23	
13	17	16	
14	19	14	
15	20	19	
Total	305	240	
Mean	20.3	16.0	
Std. Dev.	4.569	4.456	

Source: Field Study 2016

Table 4.4: *Mean and standard deviation of students taught with computer and typewriter to acquire speed and accuracy skills and development of word processing skills*

	Experimental Group						Control Group					
	Speed	Accuracy	Word P	Total	Grade	Remark	Speed	Accuracy	Word P	Total	Grade	Remark
1	31	26	14	71	A	Pass	25	19	19	63	B	Pass
2	20	22	17	59	C	Pass	15	21	10	46	D	Pass
3	30	30	24	84	A	Pass	20	25	09	54	C	Pass
4	26	22	21	69	B	Pass	28	18	14	60	B	Pass
5	29	20	19	68	B	Pass	19	20	20	59	C	Pass
6	21	21	29	71	A	Pass	23	21	21	65	B	Pass
7	15	20	20	55	C	Pass	24	27	12	61	B	Pass
8	14	19	25	58	C	Pass	22	14	13	49	D	Pass
9	28	26	26	80	A	Pass	25	12	12	49	D	Pass
10	17	25	18	60	B	Pass	28	16	16	46	D	Pass
11	28	28	15	71	A	Pass	17	20	22	59	C	Pass
12	22	24	21	67	B	Pass	20	23	23	66	B	Pass
13	31	13	17	61	B	Pass	29	22	16	67	B	Pass
14	25	19	19	63	B	Pass	26	13	14	53	C	Pass
15	29	27	20	78	A	Pass	21	19	19	59	C	Pass
Total	366	342	305	1015			342	290	240	856		
Mean	24.4	22.8	20.3	67.7			22.8	19.3	16	57.1		
Std. Dev	5.84	4.38	4.57	8.52			4.16	4.25	4.46	7.14		

Source: Field Study 2015

APPENDIX VIII
DETAIL RESULTS OF ANALYSIS

RQ1 Examine the effect of usage of computer on speed development among business education students in Federal Colleges of Education in the North-west zone, Nigeria.

Speed Development Skills (35 marks)		
S/No	Scores of Experimental Group (Use of Computer)	Scores of Control Group (Use of Typewriter)
1	31	25
2	20	15
3	30	20
4	26	28
5	29	19
6	21	23
7	15	24
8	14	22
9	28	25
10	17	28
11	28	17
12	22	20
13	31	29
14	25	26
15	29	21
Total	366	342
Mean	24.4	22.8
Std. Dev	5.840	4.161

RQ2 Examine the usage of computer on accuracy development skill in word processing among business education students in Federal Colleges of Education in North-west zone, Nigeria.

Accuracy of Word Processing (35 marks)		
S/No	Scores of Experimental Group (Use of Computer)	Scores of Control Group (Use of Typewriter)
1	26	19
2	22	21
3	30	25
4	22	18
5	20	20
6	21	21
7	20	27
8	19	14
9	26	12
10	25	16
11	28	20
12	24	23
13	13	22
14	19	13
15	27	19
Total	342	290
Mean	22.8	19.3
Std. Dev	4.378	4.253

RQ3 Determine the effects of usage of computer on text edition development skill in word processing among business education students in Federal College of Education in the North-west zone, Nigeria

Word Processing Skill Development (30 marks)		
S/No	Scores of Experimental Group (Use of Computer)	Scores of Control Group (Use of Typewriter)
1	14	19
2	17	10
3	24	09
4	21	14
5	19	20
6	29	21
7	20	12
8	25	13
9	26	12
10	18	16
11	15	22
12	21	23
13	17	16
14	19	14
15	20	19
Total	305	240
Mean	20.3	16.0
Std. Dev	4.569	4.456

RQ4 Determine the differences on tables creation in document skill acquisition of students that use computer and those that use manual typewriter.

	Experimental Group						Control Group					
	Speed	Accuracy	Word P	Total	Grade	Remark	Speed	Accuracy	Word P	Total	Grade	Remark
1	31	26	14	71	A	Pass	25	19	19	63	B	Pass
2	20	22	17	59	C	Pass	15	21	10	46	D	Pass
3	30	30	24	84	A	Pass	20	25	09	54	C	Pass
4	26	22	21	69	B	Pass	28	18	14	60	B	Pass
5	29	20	19	68	B	Pass	19	20	20	59	C	Pass
6	21	21	29	71	A	Pass	23	21	21	65	B	Pass
7	15	20	20	55	C	Pass	24	27	12	61	B	Pass
8	14	19	25	58	C	Pass	22	14	13	49	D	Pass
9	28	26	26	80	A	Pass	25	12	12	49	D	Pass
10	17	25	18	60	B	Pass	28	16	16	46	D	Pass
11	28	28	15	71	A	Pass	17	20	22	59	C	Pass
12	22	24	21	67	B	Pass	20	23	23	66	B	Pass
13	31	13	17	61	B	Pass	29	22	16	67	B	Pass
14	25	19	19	63	B	Pass	26	13	14	53	C	Pass
15	29	27	20	78	A	Pass	21	19	19	59	C	Pass
Total	366	342	305	1015			342	290	240	856		
Mean	24.4	22.8	20.3	67.7			22.8	19.3	16	57.7		
Std. Dev	5.8407	4.3785	4.569	8.516			4.161	4.2538	4.4561	7.136		

HYPOTHESIS 1 *There is no significant effect of usage of computer on speed development of word processing in business education among business education students in Federal Colleges of Education in North-West zone, Nigeria.*

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	EXPERIMENTAL	24.4000	15	5.84074	1.50807
	CONTROL	22.8000	15	4.16104	1.07438

Paired Samples Test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	EXPERIMENTAL - CONTROL	1.60000	7.06905	1.82522	-2.31471	5.51471	.298	28	.005

HYPOTHESIS 2 *There is no significant effect of usage of computer on Accuracy of word processing in business education among business education students in North-West zone, Nigeria.*

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	EXPERIMENTAL	22.8000	15	4.37852	1.13053
	CONTROL	19.3333	15	4.25385	1.09834

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	EXPERIMENTAL - CONTROL	3.46667	6.02218	1.55492	.13169	6.80164	2.34	28	.004

HYPOTHESIS 3 *There is no significant effect of usage of computer on word processing skill development in text edition among business education students in Federal Colleges of Education in the North-west zone, Nigeria.*

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	EXPERIMENTAL	20.3333	15	5.16905	1.07644
	CONTROL	16.0000	15	4.45614	1.15057

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	EXPERIMENTAL - CONTROL	4.33333	6.65117	1.71733	.65004	8.01663	2.523	28	.002

HYPOTHESIS 4 *There is no significant difference to the skill acquisition of students in tables creation in documents that use computer and those that use manual typewriter*

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	EXPERIMENTAL	67.6667	15	8.51609	2.19885
	CONTROL	57.0667	15	7.13609	1.84253

Paired Samples Test

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	EXPERIMENTAL - CONTROL	10.60000	10.56139	2.72694	4.75130	16.44870	3.93	28	.002